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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|--------------------|
| 10/553,294 | 10/14/2005 | Hartmut Sauer | 68001-003US1 | 8642 |
| 69713 | 7590 | 09/19/2008 | EXAMINER | |
| OCCHIUTI ROHLICEK & TSAO, LLP 10 FAWCETT STREET CAMBRIDGE, MA 02138 | | | | HARRISON, NICOLE K |
| ART UNIT | | PAPER NUMBER | | |
| 4152 | | | | |
| NOTIFICATION DATE | | | DELIVERY MODE | |
| 09/19/2008 | | | ELECTRONIC | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

INFO@ORTPATENT.COM

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/553,294 | SAUER, HARTMUT |
| | Examiner | Art Unit |
| | NICOLE HARRISON | 4152 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
 - 4a) Of the above claim(s) 18 and 19 is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-17 and 20 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/6/2006</u> . | 6) <input type="checkbox"/> Other: ____ . |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-17 and 20, drawn to a product.

Group II, claim(s) 18, drawn to a method.

Group III, claim(s) 19, drawn to a use.

The inventions listed above as Groups I, II, and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: The three groups contain the common technical feature of an article comprising a composite material as claimed in claim. However, a composite material is not a special technical feature as shown in Ho et al. (US Patent # 4,720,401) (Abstract).

During a telephone conversation with Frank Occhiuti on July 16, 2008 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-17 and 20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18 and 19 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

1. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are

subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other

information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

The following references were not taken into consideration: US 5,035,781 A; US 5,075,178 A; DE 19,849,661 A1; DE 4,312,926 A1; DE 4,211,712 A1; EP 0,112,439 B1; the thesis by H. Sauer (Siegen 1999); G.D. Wolf and F. Fünger "Metallisierte Polyamid-Spritzgußteile" (metallised polyamide injection-moulded parts), Kunststoffe, 1989, pages 442-447; B. Gaida, "Einführung in die Galvanotechnik" (Introduction into electroplating) "E.G. Leuze-Verlag, Saulgau, 1988; H. Simon, M. Thoma, "Angewandte Oberflächentechnik für metallische Werkstoffe" (Applied surface technology for metallic materials) "C. Hanser-Verlag, Munich (1985); and the handbook of AHC Oberflächentechnik ("Die AHC-Oberfläche" Handbuch für Konstruktion und Fertigung, ("The AHC surface" Handbook for construction and manufacture") 4th edition 1999).

Reference EP 0 545 230 B1 is listed on page 11, line 20 of the specification, but EP 0 545 230 A1 is listed on the Information Disclosure Sheet. Please make corrections accordingly.

Drawings

3. For the purpose of examination, the figures of PCT WO 2004/092436 are being used. However, applicant should submit drawings in a separate document. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The

corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

4. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

5. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title could be "Metallic composite material with increased adhesive strength."
7. The Brief Description of the Drawings could not be located in the Specification. Applicant should amend the Specification to provide this section if, in fact, it is absent.
8. The Specification lacks the required headings as suggested above.
9. The disclosure is objected to because of the following informalities: Page 2, line 2 is missing the superscript 2 after the "3 N/mm." On line 3, "to" needs to be removed after the word "withstand." The sentence beginning on line 22 needs to be reworded. On line 36, "the" needs to be changed to "be." On page 9, line 29 the second "non-metallic layer" needs to be changed to "metallic layer."

Appropriate correction is required.

10. The use of the trademark "Hart-Coat®" and "Kepla-Coat®" on page 10, lines 33-34 have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

11. Regarding claims 1 and 2, it is unclear what is meant by the phrase "in parts." It seems as though that it should state "in part."

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claim 1 and all of its dependents are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 3, 5 and 8 are indefinite because they fail to set forth the composition or structure of the composite material and only claim properties of the article. Claims that merely set forth physical characteristics desired in an article (i.e. adhesive strength, diameter, and roughness), and not setting forth specific compositions which would meet such characteristics are invalid as vague, indefinite, and functional since they cover any conceivable combination of ingredients either presently existing or which might be discovered in the future. Ex parte SLOB, 157 USPQ 172 (Bd. Pat. App. & Int. 1967).

Regarding claims 4, 5, and 8 the phrase "in particular" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 4 recites the limitation "the non metallic layer" in line 2. There is insufficient antecedent basis for this limitation in the claim. This is vague and indefinite

because parent claim 1 refers to a non metallic ‘substrate’ and claim 2 discusses first and second non metallic layers and it is unclear which is being referred to.

Claim Rejections – 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. The examiner notes that claims 1, 10-12, 15, and 16 are considered to be product-by-process claims because the product itself does not depend on the process of making it. The product-by-process limitation, “deposited without external current” would not be expected to impart distinctive structural characteristics to the composite article. Therefore, the claims will be examined based on the end product claimed. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983).

17. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being obvious over the teachings of Suzue et al. (US Patent No. 6,088,947) in view of Birchall et al. (US Patent No. 4,015,050).

Suzue (Column 2, Lines 53-60) discloses the body of the member (substrate or non-substrate) being made of synthetic resin, such as polyamide resin, glass fiber reinforced polyamide resin, ABS resin, glass fiber reinforced ABS resin, polycarbonate resin; or made of a fiber reinforced prepeg prepared by impregnating synthetic resin, like epoxy resin or polyester into reinforced fiber, like carbon fiber or glass fiber. Suzue discloses an intermediate layer (boundary layer) formed between the body of the member and the metal film (Column 4, Lines 20-22); a first metallic layer made up of Al, Cu, Ni, or Au (Column 3, Lines 2-3); a plurality of layers between the first metal layer and a ceramic oxide layer made of the metals mentioned previously or in addition to a couple of Titanium alloys, such as TiN, TiC, or TiAlN (Column 2, Lines 2-12); and lastly a single-color forming coating film (ceramic oxide layer) made up of TiO₂ or Al₂O₃ (Column 2, Lines 40-42).

Suzue does not appear to explicitly disclose the boundary layer exhibiting calcium content. However, Birchall (Column 5, Lines 28-32) discloses that calcium carbonate may be incorporated into a solution to promote adhesion between the substrate and metal-containing layer. Suzue and Birchall are analogous art because they are from the same problem-solving area and that is they both disclose ways to help improve adhesion on a plastic substrate. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Suzue and Birchall before him or her, to modify the intermediate/ primer layer of Suzue to include the filler, calcium carbonate of Birchall because it would help the adhesion between the plastic

substrate and metallic layer. Therefore, it would have been obvious to combine Birchall with Suzue to obtain the invention as specified in the instant claims.

18. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being obvious over the teachings of Suzue et al. (US Patent No. 6,088,947) and Birchall et al. (US Patent No. 4,015,050) mentioned previously and in further view of Metzger et al. (US Patent No. 3,617,363) and Feldstein (US Patent No. 4,358,922).

Suzue and Birchall do not appear to explicitly disclose a metal dispersion layer embedded with non-metallic particles or the composition of the particulate material. However, Feldstein (Abstract; Column 1, Lines 63-68) discloses depositing dual metallic coatings on a metallic base with the first layer incorporating particulate matter. The particulate matter can include diamond, silicon carbide, and corundum to increase hardness and wear resistant properties of the composite article. Metzger (Column 4, Lines 40-49) also discloses the addition of non-metallic wear-resisting particles such as carbides, nitrides, sulfides, oxides, and fluorides of aluminum, boron, molybdenum, and silicon to metallic layers. Suzue, Birchall, Feldstein, and Metzger are analogous art because they are from the same field of endeavor such as developing articles with metallic layers thereon. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Suzue, Birchall, Feldstein, and Metzger before him or her, to modify the first metallic layer of Suzue to include the non-metallic particles of Feldstein and Metzger because the particulates help improve the mechanical properties of the article, which was the purpose of the invention under

review. Therefore, it would have been obvious to combine Feldstein and Metzger with Suzue and Birchall to obtain the invention as specified in the instant claims.

19. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being obvious over the teachings of Suzue et al. (US Patent No. 6,088,947) and Birchall et al. (US Patent No. 4,015,050) mentioned previously and in further view of Kurze et al. (US Patent No. 5,385,662) and Nissen (European Patent No. EP-0112439).

Suzue discloses that the article can have a plurality of metal layers and that included in the choice of materials for the metal layers can be aluminum. Suzue does not appear to explicitly disclose the last metallic layer having a surface that is anodically oxidized or ceramics-treated. However, Kurze (Column 2, Lines 2-3, and 14-17) discloses producing oxide ceramic layers on aluminum and its alloys. Nissen (Abstract) discloses the anodic oxidation of aluminum alloys. Suzue, Kurze, and Nissen are analogous art because they are from the same field of endeavor of metallic composites. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Suzue, Birchall, Kurze, and Nissen before him or her, to modify the last metallic layer of Suzue to include the processes of Kurze and Nissen to increase the abrasion and corrosion resistance of the metallic layer. Therefore, it would have been obvious to combine Kurze and Nissen with Suzue to obtain the invention as specified in the instant claims.

20. Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being obvious over the teachings of Suzue et al. (US Patent No. 6,088,947), Birchall et al. (US Patent No. 4,015,050), Kurze et al. (US Patent No. 5,385,662), and Nissen (European Patent No.

EP-0112439) mentioned previously and in further view of Schmidt et al. (US Patent No. 5,035,781) and Dittrich et al. (DD-229163 A).

Suzue, Birchall, Kurze, and Nissen appear to disclose everything except the ceramic oxide layer being colored black by foreign ion embediments. However, both Schmidt (Abstract) and Dittrich (Derwent Use/Advantage Abstract) disclose the use of electrolytes to produce black surface layers on light metal like titanium and aluminum. Suzue, Schmidt, and Dittrich are all analogous art because they are from the same field of endeavor such as producing surface color coating films. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Suzue, Birchall, Kurze, Nissen, Schmidt, and Dittrich before him or her, to modify the colored ceramic oxide layer of Suzue to include the addition of electrolytes of Schmidt and Dittrich to produce a black surface layer on the light metal layer to help improve stability of the surface material. Therefore, it would have been obvious to combine Schmidt and Dittrich with Suzue to obtain the invention as specified in the instant claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE HARRISON whose telephone number is (571)270-3741. The examiner can normally be reached on 7:30 am - 5 pm, Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Del Sole can be reached on (571)272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

N.H.

/Joseph S. Del Sole/
Supervisory Patent Examiner, Art Unit 4152